CLAIMS:

1. Linear polyamino- and/or polyammonium-polysiloxane copolymers containing the repeating unit

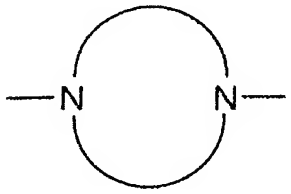
-[Q-V-]- (I)

in which Q is selected from the group consisting of

-NR-,

$-N^{+}R_2-$,

a saturated or unsaturated diamino-functional heterocycle of the formulae



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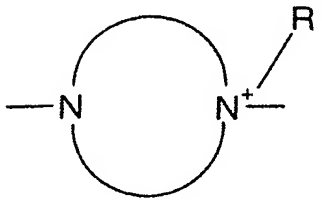
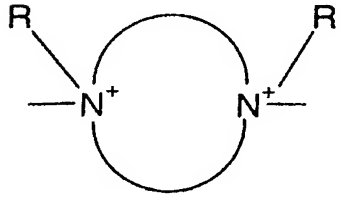
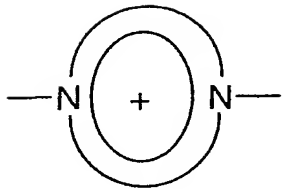


and



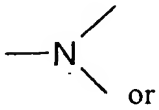
, and

an aromatic diaminofunctional heterocycle of the formula



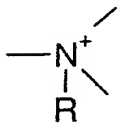
,

a trivalent radical of the formula:



or

a trivalent radical of the formula



,

in which R in each case is hydrogen or a monovalent organic radical,

Q not bonding to a carbonyl carbon atom,

V represents at least one group V^1 and at least one group V^2

in which

V^2 is selected from divalent or trivalent, straight-chain, cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radicals having up to 1000 carbon atoms (not including the carbon atoms of the polysiloxane radical Z^2, defined below) and containing, if desired, one or more groups selected from

-O-, -CONH-,

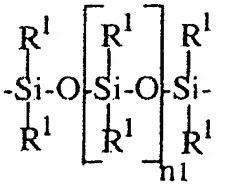
-$CONR^2$-, in which R^2 is hydrogen, a monovalent, straight-chain,

cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radical having up to 100 carbon atoms, which may contain one or more groups selected from -O-, -NH-, -C(O)- and -C(S)-, and which may if desired be substituted by one or more substituents selected from the group consisting of a hydroxyl group, an unsubstituted or substituted heterocyclic group preferably containing one or more nitrogen atoms, amino, alkylamino, dialkylamino, ammonium, polyether radicals and polyetherester radicals, and, if there are two or more groups $-CONR^2-$, they may be identical or different,

-C(O)- and -C(S)-, and

the radical V^2 may if desired by substituted by one or more hydroxyl groups, and

the radical V^2 contains at least one group $-Z^2-$ of the formula



in which

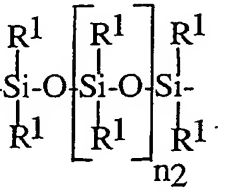
R^1 can be identical or different and is selected from the group consisting of C_1 to C_{22} alkyl, fluoro(C_1-C_{10})alkyl and C_6-C_{10} aryl, and $n_1 = 20$ to 1000,

V^1 is selected from dihydric or trihydric, straight-chain, cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radicals having up to 1000 carbon atoms, which if desired may contain one or more groups selected from

-O-, -CONH-,

$-CONR^2-$, in which R^2 is as defined above, it being possible for the groups R^2 in the groups V^1 and V^2 to be identical or different,

-C(O)-, -C(S)- and $-Z^1-$, in which $-Z^1-$ is a group of the formula



in which

R^1 is as defined above, it being possible for the groups R^1 in the groups V^1 and V^2 to be identical or different, and

$n_2 = 0$ to 19,

and the radical V^1 may if desired be substituted by one or more hydroxyl groups,

with the provisos that the trivalent radicals Q and the trivalent radicals V^1 or V^2 serve exclusively for saturating one another within the linear main chain of the polysiloxane copolymers,

and that in the copolymer the molar ratio

$V^2/V^1 < 1:3$,

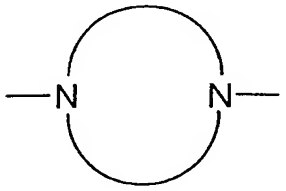
and in which the positive charges resulting from the ammonium groups are neutralized by organic or inorganic acid anions,

and the acid addition salts thereof.

2. Linear polyamino- and/or polyammonium-polysiloxane copolymers according to claim 1, in which Q is selected from the group consisting of

-NR-,
$-N^{+}R_2-$,

a saturated or unsaturated diamino-functional heterocycle of the formulae



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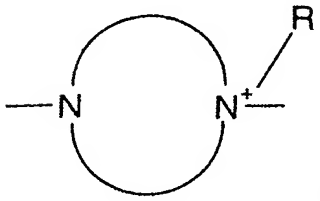
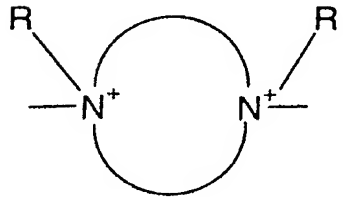
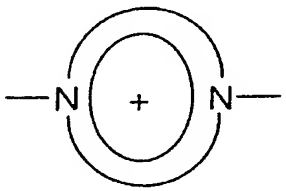


and



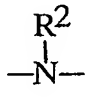
, and

an aromatic diamino-functional heterocycle of the formula

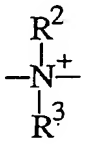


in which R is as defined above, and V^1 and V^2 are divalent radicals.

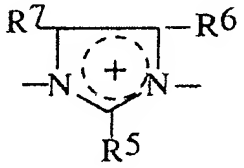
3. Linear polyamino- and/or polyammonium-polysiloxane copolymers according to claim 1 or 2, in which Q is selected from the group consisting of an amino unit of the formula



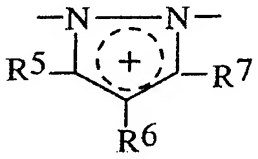
an ammonium unit of the formula



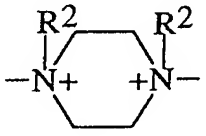
a quaternized imidazole unit of the structure



a quaternized pyrazole unit of the structure



a diquaternized piperazine unit of the structure



a monoquaternized piperazine unit of the structure

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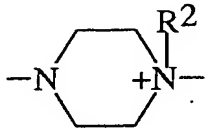
a monoquaternized piperazine unit of the structure



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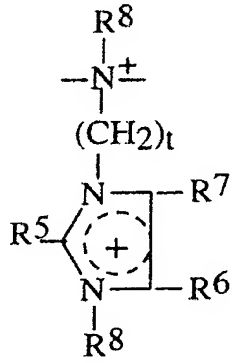
a diquaternized unit of the structure



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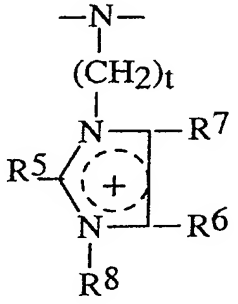
a monoquaternized unit of the structure



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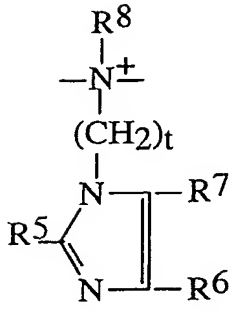
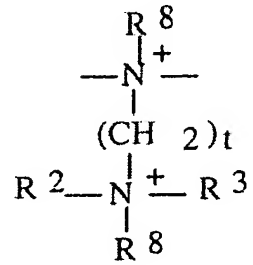
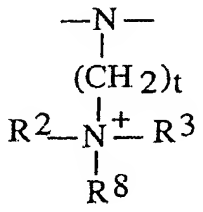
a monoquaternized unit of the structure



a diquaternized unit of the structure

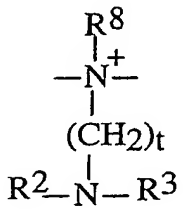


a monoquaternized unit of the structure



and

a monoquaternized unit of the structure



in which

t is from 2 to 10,

R^2 is as defined above, and the definition of R^2 may be identical to or different from the definition of the above group R^2,

R^3 has the definition of R^2, it being possible for R^2 and R^3 to be identical or different, or

R^2 and R^3 together with the positively charged nitrogen atom form a five- to seven-membered heterocycle, which if desired may additionally contain one or more nitrogen, oxygen and/or sulfur atoms,

R^5, R^6 and R^7 can be identical or different and are selected from the group consisting of H, halogen, hydroxyl group, nitro group, cyano group, thiol group, carboxyl group, alkyl group, monohydroxyalkyl group, polyhydroxyalkyl group, thioalkyl group, cyanoalkyl group, alkoxy group, acyl group, acetyloxy group, cycloalkyl group, aryl group, alkylaryl group, and groups of the type $-NHR^W$, in which R^W is H, alkyl group, monohydroxyalkyl group, polyhydroxyalkyl group, acetyl group or ureido group, and pairs of adjacent radicals R^5, R^6 and R^7 may, with the carbon atoms bonding them to the heterocycle, form aromatic five- to seven-membered rings, and

R^8 has the definition of R^2, it being possible for R^8 and R^2 to be identical or different.

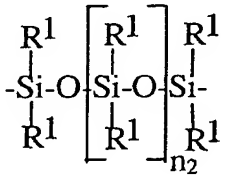
4. Linear polyamino- and/or polyammonium-polysiloxane copolymers according to one of claims 1 to 3, in which V^2 is a group of the formula

$$-V^{2}*-Z^{2}-V^{2}*-$$

in which Z^2 is as defined above and $V^{2}*$ is a divalent straight-chain cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radical having up to 40 carbon atoms, which if desired may contain one or more groups selected

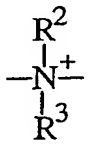
from -O-, -CONH-, -$CONR^2$-, in which R^2 is as defined above, -C(O)- and -C(S)-, and the radical V^{2*} may if desired be substituted by one or more hydroxyl groups.

5. Linear polyamino- and/or polyammonium-polysiloxane copolymers according to one of claims 1 to 4, in which the group V^1 is selected from divalent, straight-chain, cyclic or branched, saturated, unsaturated or aromatic hydrocarbon radicals having up to 600 carbon atoms, which may if desired contain one or more groups selected from
-O-, -CONH-, –$CONR^2$-, in which R^2 is as defined above, -C(O)-, -C(S)- and –Z^1–, in which –Z^1– is a group of the formula



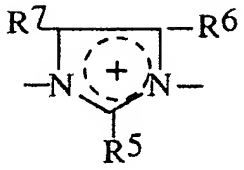
in which
R^1 is C_1 to C_3 alkyl, fluoro(C_3-C_6)alkyl or C_6 aryl, and
n_2 is as defined above.

6. Linear polyamino- and/or polyammonium-polysiloxane copolymers according to one of claims 1 to 5, in which the group Q is selected from:



,

a quaternized imidazole unit of the structure



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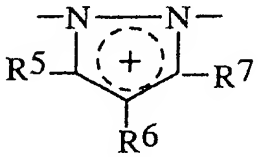
a quaternized pyrazole unit of the structure



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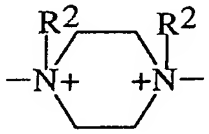
a diquaternized piperazine unit of the structure



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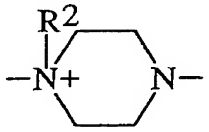
a monoquaternized piperazine unit of the structure



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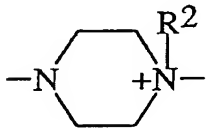
a monoquaternized piperazine unit of the structure



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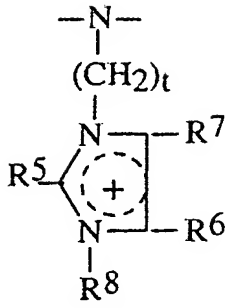
a monoquaternized unit of the structure



in which R^2, R^3, R^4, R^5, R^6, R^7 and R^8 are as defined above.

7. Linear polyamino- and/or polyammonium-polysiloxane copolymers according to one of claims 1 to 6, in which the molar ratio V^2/V^1 complies with the relationship

$$0.0005 < V^2/V^1 < 0.3.$$

8. Linear polyamino- and/or polyammonium-polysiloxane copolymers according to one of claims 1 to 7, in which the molar ratio V^2/V^1 complies with the relationship

$$0.005 < V^2/V^1 < 0.2.$$

9. A process for preparing the linear polyamino- and/or polyammonium-polysiloxane copolymers according to one of claims 1 to 8, in which

a) at least one amine compound selected from a diamine compound and/or a primary or secondary monoamine compound is reacted with at least two difunctional organic compounds capable of reacting with the amino functions of the amine compound, the molar ratio of the organic compounds being chosen so as to meet the condition $V^2/V^1 < 1:3$,

b) at least two moles of an amine compound selected from a diamine compound and/or a primary or secondary monoamine compound are reacted with one mole of a difunctional organic compound capable of

reacting with the amino functions of the amine compound, to form a diamine compound (monomer), which is subsequently reacted with at least one amine compound selected from a diamine compound and/or a primary or secondary monoamine compound and with at least one further difunctional organic compound capable of reacting with the amino functions of the amine compounds,

c) an amine compound selected from a diamine compound and/or a primary or secondary monoamine compound is reacted with a difunctional organic compound capable of reacting with the amino functions of the amine compounds, to form a diamine compound (amino-terminated oligomer), which is subsequently reacted with at least one difunctional organic compound capable of reacting with the amino functions of the diamine compounds,

d) an amine compound selected from a diamine compound and/or a primary or secondary monoamine compound is reacted with a difunctional organic compound capable of reacting with the amino functions of the amine compound, to form a difunctional compound capable of reacting with amino functions (difunctional oligomer), which is subsequently reacted with at least one amine compound selected from a diamine compound and/or a primary or secondary monoamine compound and with at least one further compound capable of reacting with amino functions,

it being possible if desired to add monofunctional, preferably tertiary, monoamines or suitable monoamines not capable of chain propagation, and/or monofunctional compounds capable of reacting with amino functions, as chain terminators, and the stoichiometry of the amino functions and the functional groups capable of reacting with amino functions always being approximately 1:1 in the last stage of the reaction,

and it being possible for any amino functions present to be protonated, alkylated or quaternized.

10. The process according to claim 9, in which the functional groups of the difunctional compounds capable of reacting with amino functions are selected from the group consisting of epoxy groups and haloalkyl groups.

11. The use of the linear polyamino- and/or polyammonium-polysiloxane copolymers according to one of claims 1 to 8 and of the linear polyamino- and/or polyammonium-polysiloxane copolymers obtained according to claim 9 or 10 in cosmetic formulations, in laundry detergents or for surface-treating substrates.

12. The use according to claim 11 for fiber treatment and/or fiber finishing.

13. Compositions comprising at least one linear polyamino- and/or polyammonium-polysiloxane copolymer according to any one of claims 1 to 8 or at least one of the linear polyamino- and/or polyammonium-polysiloxane copolymers obtained according to one of claims 9 or 10, together with at least one further ingredient customary for the composition.

14. A composition according to claim 13, being a laundry detergent composition or a cosmetic composition.